## REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

At the outset, the Applicants wish to thank the examiners for the courtesy shown to their representatives during a personal interview on March 25, 2009. The participants were Examiner Fotakis, SPE Fan, Toshi Azuma, and the undersigned. The issues discussed were the rejections of claims 1-4, 7-11 and 14-16 were rejected under 35 USC 103(a) as unpatentable over Sandberg et al. (US 5 715 280) in view of Xie et al. (A Combined DMT/DWMT System for DSL Application), and further in view of Mandyam (US 6,940,828). The following includes a summary of the substance of the interview.

During the interview, the examiners noted that Sandberg is cited for a disclosure of IDCT but lacks any disclosure of IDST, wavelet transforms or real coefficients and that Xie discloses the use of wavelet transforms, real coefficient values, and IDCT, but lacks any disclosure of IDST. The examiners noted that Mandyam discloses the use of both IDST and IDCT and particularly discusses IDFT.

More particularly, the examiners noted that Fig. 3 of Mandyam performs both an inverse discrete cosine transformation and an inverse discrete sine transformation on data that is to be communicated by the sending station.

However, the Applicants' representatives noted that col. 8, lines 10-14 of Mandyam states that different data is applied to IDCT 46-1 than to IDST 46-2. Specifically, the modulation symbols are divided into two groups, with each group being supplied to a different transformer.

Separate serial OFDM symbols are generated on lines 64-1 and 64-2 respectively, and added by adder 94 and transmitted as OFDM symbols x(k).

Thus, Mandyam fails to teach or suggest the subject matter of the present claims wherein the same parallel data from the S/P converter is input to both the IDCT and the IDST, with the in-phase and orthogonal signals being respectively output by the IDCT and IDST.

The examiners acknowledged that while col. 7, lines 8-24 of Mandyam discloses the use of non-DFT "trigonometric transformations," Mandyam does not specifically refer to discrete wavelet transformation.

Also, during the interview, the Examiners pointed out that Mandyam discloses an OFDM communication system having both "Discrete Cosine Transform (DCT)" and "Discrete Sine Transform (DST)" at col.8, lines 7-10, and "non-DFT unitary transformations" at col. 7, lines 10-11. The Examiners stated their belief that the term "non-DFT unitary transformations" would include a wavelet transform. The Examiners further noted that Xie discloses a combined DMT/DWMT system having "wavelet transform" at page 185, Abstract and "DCT" at page 188, left col. and Fig.3. The Examiners stated that it would have been obvious to combine these references to obtain the present claimed subject matter.

The Applicants' representatives argued that even if the teachings of Sandberg, Mandyam and Xie were combined, the result would not achieve data transmission in accordance with the present invention.

Claims 1, 11 and 14 have been amended for clarity by incorporating limitations from former claims 2, 3 or 4; and claims 2, 3, 4, 12 and 16 have been amended for cosmetic reasons. Support for the amended claims is found for example at specification page 13, lines 23-25 and

page 14, lines 1-4 and lines 11-17. (It should be noted that references herein to the specification and drawings are for illustrative purposes only and are not intended to limit the scope of the invention to the referenced embodiments.)

The Applicants respectfully note that Mandyam discloses, at col. 7, lines 11-13, that the term "non-DFT unitary transformations," i.e., sinusoidal transformations or discrete trigonometric transformations, exhibit properties similar to discrete Fourier transforms. That is, the term "non-DFT unitary transformations" means discrete trigonometric transformations or sinusoidal transformations.

Regarding discrete trigonometric transformations, Mandyam further discloses, at col. 7, lines 47 and 48, that the IDCT and IDST are both inverse discrete trigonometric transforms. That is, the term "discrete trigonometric transformations" refers to IDCT and IDST. In general, IDCT and IDST does not refer to wavelet transforms. Therefore, discrete trigonometric transformations are different from wavelet transform.

Regarding sinusoidal transformations, Mandyam discloses, at col.7, lines 20 and 21, that single-side band (SSB) transmission is permitted through the use of sinusoidal transforms. In general, upconverting and downconverting are performed in SSB using a sine wave. That is, sinusoidal transforms are transforms using a sine wave, which is different from a transform using a wavelet function. Therefore, sinusoidal transforms are different from wavelet transforms.

Accordingly, the term "non-DFT unitary transformation" does not encompass wavelet transforms. Mandyam discloses both DCT and DST; however, Mandyam does not teach the use of a wavelet transform.

Furthermore, Xie discloses, at page 188, left col. that cosine-modulated filter bank can be efficiently implement a polyphase structure. However, the term "cosine-modulated filter bank" means a type of filter bank and does not mean DCT.

Accordingly, Xie discloses wavelet transform and further discloses at page 188, right column a prototype filter. However, Xie does not disclose the use of DCT.

Accordingly, both Mandyam and Xie lack does not any suggestions and motivations to combine their teachings.

Moreover, even if their teachings were combined, the result would lack the subject matter of the present claimed invention of, *inter alia*, a first inverse wavelet transformer that includes a discrete cosine transformer for inputting the parallel data from said serial-to-parallel converter and for outputting the in-phase signal of complex information, and a second inverse wavelet transformer that includes a discrete sine transformer for inputting the parallel data from said serial-to-parallel converter and for outputting the orthogonal signal of complex information (see claims 1 and 14) or a first inverse wavelet transformer that includes a discrete cosine transformer for inputting the parallel data from said complex data generator and for outputting the in-phase signal of complex information, and a second inverse wavelet transformer that includes a discrete sine transformer for inputting the parallel data from said complex data generator and for outputting the orthogonal signal of complex information (see claim 11).

Moreover, the references considered in combination lacks any teaching or suggestion of coefficient wavelet filters including a prototype filter, as recited in the amended claims.

Accordingly, it is submitted that Xie, Sandberg and Mandyam, considered alone or together, fail to render obvious the subject matter of present independent claims 1, 11, and 14.

Claims 2-4, 12, and 16 are considered to be allowable due to their dependence from allowable independent claims and also due to their recitation of subject matter that provides an independent basis for their individual alowability.

For the above reasons, it is submitted that this application is in condition for allowance, and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

/James Edward Ledbetter/

Date: April 10, 2009
JEL/att

James E. Ledbetter
Registration No. 28,732

Attorney Docket No. L8612.03108
Dickinson Wright PLLC
1875 Eye Street, N.W., Suite 1200
Washington, D.C.
20006
Telephone: 202.457.0160
Facsimile: 202.659.1559

DC 8612-3108 1349926v1